



1998–99 CATS ASSESSMENT

Open-Response Item Scoring Worksheet

Grade 11—Social Studies

The **academic expectation** addressed by “Ocean Waste” is

2.19 Students recognize and understand the relationship between people and geography and apply their knowledge in real-life situations.

The **core content** assessed by this item includes

- Human modification of the physical environment has possible global effects (e.g., a canal’s impact on trade, clearing of rain forest reducing oxygen production, damming a river and its impact on climate).

Ocean Waste

For many years, countries have released industrial and human waste into the ocean. In recent years, scientists have begun to see changes in the ocean’s ecosystem due to contamination by this waste.

- a. Identify **three** ways that changes in the ocean’s ecosystem might affect human life.
- b. Discuss **two** possible strategies to help solve the problems associated with the contamination of the ocean’s ecosystem.



SCORING GUIDE

Grade 11 Social Studies

Score	Description
4	Student clearly identifies three plausible ways that changes in the ocean's ecosystem might affect human life. Response includes a clear discussion of two realistic strategies to help solve problems associated with the contamination of the ocean's ecosystem. Response demonstrates a thorough understanding of the relationship between humans and their environment.
3	Student identifies two plausible ways that changes in the ocean's ecosystem might affect human life. Response includes a general discussion of two realistic strategies to help solve problems associated with the contamination of the ocean's ecosystem. Response demonstrates a general understanding of the relationship between humans and their environment. OR Student clearly identifies three plausible ways that changes in the ocean's ecosystem might affect human life. Response includes a general discussion of one realistic strategy.
2	Student identifies at least one plausible way that changes in the ocean's ecosystem might affect human life. Response includes a limited discussion of one realistic strategy. Response demonstrates a limited understanding of the relationship between humans and their environment.
1	Student identifies one plausible way that changes in the ocean's ecosystem might affect human life and/or minimally discusses one or more strategies to help solve problems associated with the contamination of the ocean's ecosystem.
0	Response is totally incorrect or irrelevant.
Blank	No response.

Ways that Changes Might Affect Human Life:

- Harm/poison marine food sources
- Pollute swimming areas
- Negatively impact fishing industry
- Negatively impact other industries near ocean (especially tourism)
- Kill/poison plants that are potential sources of medicine
- Cause disease from consuming or coming into contact with ocean water
- Contaminate drinking water (note that many areas drink filtered ocean water)

Possible Strategies:

- Recycle waste
- Filtration systems
- Government regulation (stricter laws, fines)
- Improved waste storage techniques
- Environmental education
- Increase government spending to clean up oceans



ANNOTATED STUDENT RESPONSE

Grade 11 Social Studies

Sample 4-Point Response of Student Work

Student Response

The ocean's changing ecosystem might affect human life through the food supply. If countries are contaminating the oceans, they are probably killing hundreds of thousands of animals (fish, lobsters, oysters, etc.) that live in the ocean. Therefore, we will experience a decline in the availability of these products. To identify another effect of ocean contamination on human life, we can take this idea even further. A decrease in food supply means that coastal cities that rely heavily on this food supply will experience financial difficulties. In turn, this could affect our economy greatly. Thirdly, by contaminating our oceans, we could be killing off the corals that help to make up our coral reefs. These reefs do many things for us. If we upset this balance, it could cause the destruction of or damage to these reefs. These reefs are a major source of income for people on the coast who charge tourists to come see them (i.e. the Great Barrier Reef).

Companies must first remove the most potent chemicals from their waste as well as the ones that are certain to kill an organism. Before it can be dumped, the waste must first be tested. Secondly, each company (depending on its production) will only be allowed so many tons of waste to be dumped into the ocean over a year's time.

← Student clearly identifies one plausible way that a change in the ocean's ecosystem might affect human life (i.e., contamination of sea life will result in less food available to humans).

← Student clearly identifies another plausible way that a change in the ocean's ecosystem might affect human life (i.e., economic decline in areas that rely on fishing industries).

← Student clearly identifies a third plausible way that a change in the ocean's ecosystem might affect human life (i.e., loss of tourism for certain coastal communities).

← Student clearly discusses two realistic strategies to help solve problems associated with the contamination of the ocean's ecosystem (i.e., testing and removal of potent chemicals and an established waste allowance for companies).

Overall, the student demonstrates a thorough understanding of the possible effects of human modification of the physical environment. The student's discussion of realistic strategies also demonstrates real-life knowledge about the relationship between people and geography. The response includes appropriate specific examples.



ANNOTATED STUDENT RESPONSE

Grade 11 Social Studies

Sample 4-Point Response of Student Work

Student Response

Changes in the ocean's ecosystem could drastically affect human life. By dumping waste into the ocean, we could harm the very fish we catch and eat. It is probable that if humans eat fish and other sea animals that have been exposed to toxic substances there could be an increase in cancer and other diseases. Ocean life is a major source of food for many people and if we contaminate sea life, we are poisoning ourselves. Furthermore, if the ecosystem of the ocean is destroyed, we could lose yet undiscovered plants and animals that might be useful for medical research. Who knows, the cure for cancer could be hidden within the vast oceans of the world. Finally, if ocean destruction continues, and the ecosystems of the sea are destroyed, our own ecosystems will become polluted. Once the oceans are contaminated the dead sea life and polluted water will wash onto our beaches, harming us.

One way to help lessen ocean pollution is to research ways certain kinds of wastes could be recycled and used for energy. Instead of dumping our wastes, we could possibly use them for energy. Also, we could use essentially uninhabited continents like Antarctica as giant storage facilities for wastes. Perhaps storage tanks could be built to contain wastes and then stored on uninhabited landmasses.

Student clearly identifies one plausible way that a change in the ocean's ecosystem might affect human life (i.e., increase in human diseases resulting from consumption of toxic sea life).

Student clearly identifies another plausible way that a change in the ocean's ecosystem might affect human life (i.e., loss of potential medicines).

Student clearly identifies a third plausible way that a change in the ocean's ecosystem might affect human life (i.e., human contamination from contact with poisoned beached sea life).

Student clearly discusses two realistic strategies to help solve the problems associated with the contamination of the ocean's ecosystem (i.e., recycling waste as alternative energy sources and utilizing unpopulated areas for waste storage).

Overall, the student demonstrates a thorough understanding of the possible effects of human modification of the physical environment. The student's discussion of realistic strategies also demonstrates real-life knowledge about the relationship between people and geography. The response is clearly written and detailed.



ANNOTATED STUDENT RESPONSE

Grade 11 Social Studies

Sample 3-Point Response of Student Work

Student Response

There are many ways that the oceans ecosystem might affect human life. If polutants of large quantity are dropped in, fish that we catch and eat would be harder, and more expensive, to find. This would put some people out of work. Suppose some of the infected fish were caught and sold. Millions of people eat fish, and there's a good chance they could get very sick from the fish. Another thing that could affect human life is dead fish on the beaches. Fish would be everywhere smelling and rotting away. This would decrease tourism on shorelines.

There are many possible strategies to help solve this problem. The simplest one being stop doing it. If we, or even just five of us, it would help tremedously. Another good way would be to make the laws stronger. Make the punishment worse. Then people wouldn't want to do it.

← Student clearly identifies one plausible way that a change in the ocean's ecosystem might affect human life (i.e., negatively affect fishing industry).

← Student clearly identifies another plausible way that a change in the ocean's ecosystem might affect human life (i.e., contaminated fish causing sickness in humans).

← Student clearly identifies a third plausible way that a change in the ocean's ecosystem might affect human life (i.e., contaminated beached sea life would negatively affect tourism).

← Student provides only one realistic strategy to help solve the problems associated with the contamination of the ocean's ecosystem (i.e., strengthen laws and punishments). The other statement ("stop doing it") demonstrates limited analysis.

Overall, the student demonstrates a clear understanding of the possible effects of human modification of the physical environment. The student also demonstrates a general real-life knowledge about the relationship between people and geography.



ANNOTATED STUDENT RESPONSE

Grade 11 Social Studies

Sample 2-Point Response of Student Work

Student Response

We won't be able to go fishing because there won't be any fish. We will not have any history to our ocean. No animals, etc. Humans will suffer.

We need to find a desinated area were we can dump the contaminated items and human waste to be dissposed of correctly. Build areas of contamination.

Student identifies only one plausible way that a change in the ocean's ecosystem might affect human life (i.e., there will be no fish for humans to catch). The other ways are either irrelevant (i.e., we will not have any history to our ocean) or vague (i.e., humans will suffer).

Student provides one realistic strategy to help solve the problems associated with the contamination of the ocean's ecosystem (i.e., designating areas to dump waste).

Overall, the student demonstrates a limited understanding of the possible effects of human modification of the physical environment.

Sample 1-Point Response of Student Work

Student Response

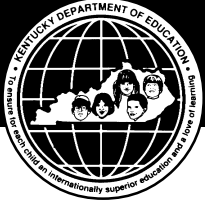
The ocean life could be affected by mutated sea life contaminated waste or mutated plants. So overall anything that is related to the ocean could possibly be affected.

One strategy would be to put strict law prohibiting the dumping of waste. Also another thing would be to organize a group to patrol ocean shores and things to monitor the activity and changes of ocean life.

Student does not identify a way that a change in the ocean's ecosystem will directly affect human life.

Student provides two minimal strategies to help solve the problems associated with the contamination of the ocean's ecosystem (i.e., strict laws and ocean patrols).

Overall, the student meets the minimum criteria to earn a 1-point response by answering part b of the question.



INSTRUCTIONAL STRATEGIES

Grade 11 Social Studies

The open-response item “**Ocean Waste**” assesses (1) students’ general knowledge about the ocean’s ecosystem, and (2) students’ ability to analyze the relationship of humans and their environment. The instructional strategies below present ideas for helping students explore and master these concepts.

Lead students on a field trip to clean up a local river, lake, or ocean.

Have students work individually, in pairs, in small groups, and/or as a class to complete any or all of the following activities:

- Research the watershed on which their school/neighborhood is located.
- Create posters or pamphlets for the community to increase awareness about the effects of pollution on their local watershed.
- Investigate and share with the class or school examples from newspapers, periodicals, and the Internet about ocean contamination.
- Write to businesses to inquire about methods that they use to minimize pollution.
- Identify and study industries that release waste into the oceans. Students may want to initiate a letter-writing campaign.
- Compare dumping policies of various countries (international law).
- Design a plan (can include building a model of a recycling plant, for example) to help solve problems associated with ocean waste.
- Organize a recycling center at school and/or in the community.